F. Maxwell Harper

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https://maxharp3r.github.io/

Education

University of Minnesota, Minneapolis, MN (2003 – 2009)
Ph.D., Computer Science
Advised by Dr. Joseph A. Konstan

University of Minnesota, Minneapolis, MN (2003 – 2006)
M.S., Computer Science

Carleton College, Northfield, MN (1994 – 1998)
B.A., International Relations and Environmental Studies
Magna Cum Laude

Professional and Research Experience

Amazon, Seattle, WA (2019 –)
Senior Applied Scientist. Developing algorithms, models, and analysis to help ensure that Amazon's Choice is fair to all of its customers, and to protect customers' trust. Led a project to detect offensive language using modern NLP techniques. Currently developing techniques to measure algorithmic fairness, and conducting research in the areas of self-disclosure and interactive machine learning.

University of Minnesota, Minneapolis, MN (2012 – 2019)
Research Scientist. Led research projects at the GroupLens Center for Social and Human-Centered Computing in the areas of recommender systems and social computing. Managed the MovieLens code, community, and datasets (https://movielens.org). Mentored graduate and undergraduate students in research and software development.

Code 42 Software, Minneapolis, MN (2011 – 2012)
Software Engineer. Built server-side software for CrashPlan, a product with hundreds of thousands of users and many dozens of petabytes of backup data. Contributed to many efforts, with a focus on scalability and automated test coverage.

Theophilus, Inc., New York, NY (50% time, 2009 – 2010)
Consulting Data Scientist. Built a recommendation engine for an online restaurant deal discovery application. Prototyped and evaluated experimental technologies for automated summarization and recommendation.

Blue Shift Software Laboratory, Minneapolis, MN (2009 – 2011)
Founder, Lead Engineer. Founded a startup business with the broad goal of providing software that supports data-driven decision-making through the synthesis and visualization of existing knowledge. Launched thinkmeter.com and eventburn.com, both hosted on Google App Engine.

University of Minnesota, MN (20% – 50% time, 2009 – 2010)
Post-Doctoral Associate. Coordinated research efforts between the GroupLens research group and researchers from the Department of Writing Studies. Developed machine learning techniques to infer the intent of users of social software. Contributed to a funded NSF grant to extend the group's work on question and answer Web sites. Mentored graduate students.

University of Minnesota, MN (2004 – 2009)
Research Assistant. Led and participated in several research teams, with the overarching goal of learning and publishing about user behavior in online systems. Collaborated with computer scientists, economists, and psychologists. Conducted laboratory and field studies, collected and analyzed massive data sets, and developed novel algorithms.

Nokia Research Center, Palo Alto, CA (Summer 2007)
Research Intern. Built the software to drive a network of interactive touchscreen computers that

recognize nearby users using Bluetooth signal processing. Investigated the impact on interpersonal relationships through observational analysis, surveys, and data mining.

Early Career (1998 – 2003)
Software Engineer for Fair Isaac (data mining for credit scoring algorithms), AT&T Wireless (data warehousing applications), and OneSecure (web application development). *Systems Administrator Consultant (20% time)* for the Walker Art Center (administration of new media art installations).

Teaching Experience

Department of Computer Science, University of Minnesota, MN (2007, 2016 – 2019)
Instructor. Taught CSCI 5117, "Developing the Interactive Web," a graduate-level course (40-60 students, 1-2 TAs) on modern web development topics including node.js and react. Previously taught CSCI 5991 (Spring 2018), "Data Science Methods for Social Computing," a graduate-level seminar (12 students) on data wrangling, visualization, and modeling. Previously taught CSCI 4061 (Spring 2007), "Introduction to Operating Systems," an undergraduate course (110 students, 3 TAs) on operating systems concepts and UNIX systems programming in C.

Department of Computer Science, University of Minnesota, MN (2005.)
Teaching Assistant. Led lab sections, held office hours, and graded for CSCI 1902, "Structure of Computer Programming 2," and CSCI 1001, "An Overview of Computer Science."

Department of Software Engineering, University of Minnesota, MN (2003 – 2004)
Teaching Assistant. Held office hours and graded for SENG 5801, "Software Engineering 1," and SENG 5115, "GUI Design and Evaluation."

Peer-Reviewed Publications

Google Scholar: https://scholar.google.com/citations?user=y9kaCjcAAAAJ&hl=en

Wang, R., **Harper, F. M.**, & Zhu, H. (2020). Factors Influencing Perceived Fairness in Algorithmic Decision-Making: Algorithm Outcomes, Development Procedures, and Individual Differences. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1–14). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376813

Cheng, H.-F., Wang, R., Zhang, Z., O'Connell, F., Gray, T., **Harper, F. M.**, & Zhu, H. (2019). Explaining Decision-Making Algorithms through UI: Strategies to Help Non-Expert Stakeholders. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (pp. 1–12). Association for Computing Machinery. https://doi.org/10.1145/3290605.3300789

McRoberts, S., Wissbroecker, J., Wang, R., & **Harper, F. M.** (2019). Exploring Interactions with Voice-Controlled TV. ArXiv:1905.05851 [Cs]. http://arxiv.org/abs/1905.05851

Sharma, M., **Harper, F. M.**, & Karypis, G. (2019). Learning from Sets of Items in Recommender Systems. ACM Transactions on Interactive Intelligent Systems, 9(4), 19:1-19:26. https://doi.org/10.1145/3326128

Zhao, Q., Willemsen, M. C., Adomavicius, G., **Harper, F. M.**, & Konstan, J. A. (2019). From preference into decision making: Modeling user interactions in recommender systems. Proceedings of the 13th ACM Conference on Recommender Systems, 29–33. https://doi.org/10.1145/3298689.3347065

Yao, Y., & **Harper, F. M.** (2018). Judging Similarity: A User-centric Study of Related Item Recommendations. In Proceedings of the 12th ACM Conference on Recommender Systems (pp. 288–296). New York, NY, USA: ACM. https://doi.org/10.1145/3240323.3240351

Zhong, Y., Menezes, T. L. S., Kumar, V., Zhao, Q., & **Harper, F. M.** (2018). A Field Study of Related Video Recommendations: Newest, Most Similar, or Most Relevant? In Proceedings of the 12th ACM Conference on Recommender Systems (pp. 274–278). New York, NY, USA: ACM. https://doi.org/10.1145/3240323.3240395 Best paper nominee.

Zhao, Q., Willemsen, M. C., Adomavicius, G., **Harper, F. M.**, & Konstan, J. A. (2018). Interpreting User Inaction in Recommender Systems. In Proceedings of the 12th ACM Conference on Recommender Systems (pp. 40–48). New York, NY, USA: ACM. https://doi.org/10.1145/3240323.3240366

Zhao, Q., **Harper, F. M.**, Adomavicius, G., & Konstan, J. A. (2018). Explicit or Implicit Feedback? Engagement or Satisfaction?: A Field Experiment on Machine-learning-based Recommender Systems. In Proceedings of the 33rd Annual ACM Symposium on Applied Computing (pp. 1331–1340). New York, NY, USA: ACM. https://doi.org/10.1145/3167132.3167275

Nguyen, T. T., **Harper, F. M.**, Terveen, L., & Konstan, J. A. (2017). User Personality and User Satisfaction with Recommender Systems. Information Systems Frontiers, 1–17. https://doi.org/10.1007/s10796-017-9782-y

Sharma, M., **Harper, F. M.**, & Karypis, G. (2017). Learning from Sets of Items in Recommender Systems. Presented at the eKNOW 2017 : The Ninth International Conference on Information, Process, and Knowledge Management, Nice, France. Retrieved from https://www.thinkmind.org/download.php?articleid=eknow_2017_4_10_68011. Best paper award.

Zhao, Q., Adomavicius, G., **Harper, F. M.**, Willemsen, M., & Konstan, J. A. (2017). Toward Better Interactions in Recommender Systems: Cycling and Serpentining Approaches for Top-N Item Lists. In Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (pp. 1444–1453). New York, NY, USA: ACM. https://doi.org/10.1145/2998181.2998211

Kang, J., Condiff, K., Chang, S., Konstan, J. A., Terveen, L., & **Harper, F. M.** (2017). Understanding How People Use Natural Language to Ask for Recommendations. In Proceedings of the Eleventh ACM Conference on Recommender Systems (pp. 229–237). New York, NY, USA: ACM. https://doi.org/10.1145/3109859.3109873

Zhao, Q., Huang, Z., **Harper, F. M.**, Terveen, L., & Konstan, J. A. (2016). Precision CrowdSourcing: Closing the Loop to Turn Information Consumers into Information Contributors. In Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (pp. 1615–1625). New York, NY, USA: ACM. https://doi.org/10.1145/2818048.2819957

Zhao, Q., Chang, S., **Harper, F. M.**, & Konstan, J. A. (2016). Gaze Prediction for Recommender Systems. In Proceedings of the 10th ACM Conference on Recommender Systems (pp. 131–138). New York, NY, USA: ACM. https://doi.org/10.1145/2959100.2959150

Chang, S., **Harper, F. M.**, & Terveen, L. G. (2016). Crowd-Based Personalized Natural Language Explanations for Recommendations. In Proceedings of the 10th ACM Conference on Recommender Systems (pp. 175–182). New York, NY, USA: ACM. https://doi.org/10.1145/2959100.2959153

Chang, S., **Harper, F. M.**, He, L., & Terveen, L. G. (2016). CrowdLens: Experimenting with Crowd-Powered Recommendation and Explanation. In Tenth International AAAI Conference on Web and Social Media. Retrieved from http://www.aaai.org/ocs/index.php/ICWSM/ICWSM16/paper/view/13111

Harper, F. M., & Konstan, J. A. (2015). The MovieLens Datasets: History and Context. ACM Trans. Interact. Intell. Syst., 5(4), 19:1–19:19. https://doi.org/10.1145/2827872

Harper, F. M., Xu, F., Kaur, H., Condiff, K., Chang, S., & Terveen, L. (2015). Putting Users in Control of Their Recommendations. In Proceedings of the 9th ACM Conference on Recommender Systems (pp. 3–10). New York, NY, USA: ACM. https://doi.org/10.1145/2792838.2800179

Ekstrand, M. D., Kluver, D., **Harper, F. M.**, & Konstan, J. A. (2015). Letting Users Choose Recommender Algorithms: An Experimental Study. In Proceedings of the 9th ACM Conference on Recommender Systems (pp. 11–18). New York, NY, USA: ACM. https://doi.org/10.1145/2792838.2800195

Chang, S., **Harper, F. M.**, & Terveen, L. (2015). Using Groups of Items for Preference Elicitation in Recommender Systems. In Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (pp. 1258–1269). New York, NY, USA: ACM. https://doi.org/10.1145/2675133.2675210

Wang, T.-Y., **Harper, F. M.**, & Hecht, B. (2014). Designing Better Location Fields in User Profiles. In Proceedings of the 18th International Conference on Supporting Group Work (pp. 73–80). New York, NY, USA: ACM. https://doi.org/10.1145/2660398.2660424

Nguyen, T. T., Hui, P.-M., **Harper, F. M.**, Terveen, L., & Konstan, J. A. (2014). Exploring the Filter Bubble: The Effect of Using Recommender Systems on Content Diversity. In Proceedings of the 23rd International Conference on World Wide Web (pp. 677–686). New York, NY, USA: ACM. https://doi.org/10.1145/2566486.2568012

Ekstrand, M. D., **Harper, F. M.**, Willemsen, M. C., & Konstan, J. A. (2014). User Perception of Differences in Recommender Algorithms. In Proceedings of the 8th ACM Conference on Recommender Systems (pp. 161–168). New York, NY, USA: ACM. https://doi.org/10.1145/2645710.2645737

Pal, A., **Harper, F. M.**, & Konstan, J. A. (2012). Exploring Question Selection Bias to Identify Experts and Potential Experts in Community Question Answering. ACM Trans. Inf. Syst., 30(2), 10:1–10:28. https://doi.org/10.1145/2180868.2180872

Ren, Y., **Harper, F. M.**, Drenner, S., Terveen, L. G., Kiesler, S. B., Riedl, J., & Kraut, R. E. (2012). Building Member Attachment in Online Communities: Applying Theories of Group Identity and Interpersonal Bonds. Mis Quarterly, 36(3), 841–864. https://doi.org/10.2307/41703483

Logie, J., Weinberg, J., **Harper, F. M.**, & Konstan, J. A. (2011). Asked and Answered: On Qualities and Quantities of Answers in Online Q&A Sites. In Fifth International AAAI Conference on Weblogs and Social Media. Retrieved from http://www.aaai.org/ocs/index.php/ICWSM/ICWSM11/paper/view/3844

Dong, X., **Harper, F. M.**, & Konstan, J. A. (2011). Entity-linking Interfaces in User-contributed Content: Preference and Performance. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 2187–2196). New York, NY, USA: ACM. https://doi.org/10.1145/1978942.1979261

Harper, F. M., Weinberg, J., Logie, J., & Konstan, J. A. (2010). Question types in social Q&A sites. First Monday, 15(7). https://doi.org/10.5210/fm.v15i7.2913

Chen, Y., **Harper, F. M.**, Konstan, J., & Li, S. X. (2010). Social Comparisons and Contributions to Online Communities: A Field Experiment on MovieLens. The American Economic Review, 100(4), 1358–1398. https://doi.org/10.1257/aer.100.4.1358

Harper, F. M. (2009). The impact of social design on user contributions to online communities. Ph.D. Thesis, University of Minnesota. Retrieved from http://purl.umn.edu/52035

Harper, F. M., Moy, D., & Konstan, J. A. (2009). Facts or Friends? Distinguishing Informational and Conversational Questions in Social Q&A Sites. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 759–768). New York, NY, USA: ACM. https://doi.org/10.1145/1518701.1518819

McCarthy, J. F., Congleton, B., & **Harper, F. M.** (2008). The Context, Content & Community Collage: Sharing Personal Digital Media in the Physical Workplace. In Proceedings of the 2008 ACM Conference on Computer Supported Cooperative Work (pp. 97–106). New York, NY, USA: ACM. https://doi.org/10.1145/1460563.1460580 Best paper nominee.

Harper, F. M., Raban, D., Rafaeli, S., & Konstan, J. A. (2008). Predictors of Answer Quality in Online Q&A Sites. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 865–874). New York, NY, USA: ACM. https://doi.org/10.1145/1357054.1357191 Best paper nominee.

Harper, F. M., Li, S. X., Chen, Y., & Konstan, J. A. (2007). Social Comparisons to Motivate Contributions to an Online Community. In Y. de Kort, W. IJsselsteijn, C. Midden, B. Eggen, & B. J. Fogg (Eds.), Persuasive Technology (pp. 148–159). Springer Berlin Heidelberg. Retrieved from http://link.springer.com/chapter/10.1007/978-3-540-77006-0_20

Sen, S., **Harper, F. M.**, LaPitz, A., & Riedl, J. (2007). The Quest for Quality Tags. In Proceedings of the 2007 International ACM Conference on Supporting Group Work (pp. 361–370). New York, NY, USA: ACM. https://doi.org/10.1145/1316624.1316678

Harper, F. M., Sen, S., & Frankowski, D. (2007). Supporting Social Recommendations with Activity-balanced Clustering. In Proceedings of the 2007 ACM Conference on Recommender Systems (pp. 165–168). New York, NY, USA: ACM. https://doi.org/10.1145/1297231.1297262

Harper, F. M., Frankowski, D., Drenner, S., Ren, Y., Kiesler, S., Terveen, L., Kraut, B., & Riedl, J. (2007). Talk Amongst Yourselves: Inviting Users to Participate in Online Conversations. In Proceedings of the 12th International Conference on Intelligent User Interfaces (pp. 62–71). New York, NY, USA: ACM. https://doi.org/10.1145/1216295.1216313

Frankowski, D., Lam, S. K., Sen, S., **Harper, F. M.**, Yilek, S., Cassano, M., & Riedl, J. (2007). Recommenders Everywhere: The WikiLens Community-maintained Recommender System. In Proceedings of the 2007 International Symposium on Wikis (pp. 47–60). New York, NY, USA: ACM. https://doi.org/10.1145/1296951.1296957

Sen, S., Lam, S. K., Rashid, A. M., Cosley, D., Frankowski, D., Osterhouse, J., **Harper, F. M.**, & Riedl, J. (2006). tagging, communities, vocabulary, evolution. In Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work (pp. 181–190). New York, NY, USA: ACM. https://doi.org/10.1145/1180875.1180904 Best paper award.

Drenner, S., Harper, M., Frankowski, D., Riedl, J., & Terveen, L. (2006). Insert Movie Reference Here: A System to Bridge Conversation and Item-oriented Web Sites. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 951–954). New York, NY, USA: ACM. https://doi.org/10.1145/1124772.1124914

Harper, F. M., Li, X., Chen, Y., & Konstan, J. A. (2005). An Economic Model of User Rating in an Online Recommender System. In L. Ardissono, P. Brna, & A. Mitrovic (Eds.), User Modeling 2005 (pp. 307–316). Springer Berlin Heidelberg. Retrieved from http://link.springer.com/chapter/10.1007/11527886_40

Posters, Invited Papers, and Other Publications

Wissbroecker, J., & **Harper, F. M.** (2018). Early Lessons from a Voice-Only Interface for Finding Movies. In arXiv:1808.09900 [cs]. Retrieved from http://arxiv.org/abs/1808.09900

Harper, F. M. (2017). Recommender Popularity Controls: An Observational Study. In Poster Proceeding of ACM Recsys 2017 (Vol. 1905). Como, Italy: CEUR Workshop Proceedings. Retrieved from http://ceur-ws.org/Vol-1905/recsys2017_poster15.pdf

Raban, D., & **Harper, F. M.** (2008). Motivations for answering questions online. In New Media and Innovative Technologies. Ben Gurion University of the Negev Press. Retrieved from http://cmsprod.bgu.ac.il/Eng/Centers/burda/Publications/books/usesgratnewm.htm

Congleton, B., **Harper, F.**, & McCarthy, J. (2008). Linking Mobile Phones and Public Displays for Sharing Online Media in the Physical Workplace. In CHI'08 Workshop: Designing and Evaluating Mobile Phone-Based Interaction with Public Displays, at CHI '08: SIGCHI Conference on Human Factors in Computing Systems.

Harper, F. M. (2007). Encouraging Contributions to Online Communities with Personalization and Incentives. In C. Conati, K. McCoy, & G. Paliouras (Eds.), User Modeling 2007 (pp. 460–464). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-73078-1_65

Harper, F. M., Konstan, J. A., Li, X., & Chen, Y. (2005). User motivations and incentive structures in an online recommender system. In Proceedings of Group 2005 Workshop on Sustaining Community: The role and design of incentive mechanisms in online systems.

Harper, F. M. (2004). Data Warehousing and the Organization of Governmental Databases. In A. Pavlichev & G. D. Garson (Eds.), Digital Government (pp. 236–247). Hershey, PA, USA: IGI Global. Retrieved from http://dl.acm.org/citation.cfm?id=973560.973576

Research Grants

Building Blocks for Natural Language Recommenders (PI), Amazon Research Awards, $100,000 for the period January, 2018 to January, 2019.

HCC-Small: Understanding and Supporting Online Question-Answering Sites (co-author), National Science Foundation, $445,519 for the period July, 2008 to July, 2011.

SBIR Phase I: Blue Shift Communities – Improving Online Technical Support (PI). National Science Foundation, $150,000 for the period January, 2010 to July, 2010.

Professional Activities

Conference Chair (2020 – present)

- ACM Conference on Recommender Systems (RecSys): 2022 General Chair
- Amazon Machine Learning Conference (AMLC): Tutorials Chair 2020–2021

Senior Program Committee Member (2019 – present)

- ACM Conference on Recommender Systems (RecSys): 2019–present
- ACM Special Interest Group on Information Retrieval (SIGIR): 2019–present
- ACM Transactions on Intelligent Interactive Systems (TIIS) Board of Distinguished Reviewers: 2017–present

Program Committee Member (2006 – present)

- ACM Conference on Recommender Systems (RecSys): 2008–present
- ACM Conference on User Modeling, Adaptation and Personalization (UMAP): 2018
- The Web Conference (WWW) workshop on "Online Recommender Systems and User Modeling": 2018
- The Web Conference (WWW): 2011
- ACM Conference on Recommender Systems (RecSys) workshop on "Recommenders and the Social Web": 2009, 2010
- International Conference on Adaptive Hypermedia (AH) workshop on "Adaptation in the Social Web": 2008
- International Conference on Human-Computer Interaction (INTERACT) workshop on "Design Principles for Software that Engages Users": 2007
- International Conference on User Modeling (UM) workshop on "Adaptation and Personalization in Social Systems: Groups, Teams, Communities": 2007
- International Conference on Adaptive Hypermedia (AH) workshop on "Social Navigation and Community Based Adaptation Technologies": 2006

NSF Panelist (2017.)

- Information & Intelligent Systems: 2017

Reviewer (2006 – present)

- SIGCHI Conference on Human Factors in Computing Systems (CHI): 2006–present
- ACM Conference on Computer Supported Cooperative Work (CSCW): 2006–present
- ACM Conference on Recommender Systems (RecSys): 2008–present
- ACM Transactions on Interactive Intelligent Systems (TIIS): 2018

- IEEE Intelligent Systems (IS): 2018
- ACM Transactions on the Web (TWEB): 2008, 2010, 2017
- ACM Transactions on Intelligent Systems and Technology (TIST): 2017
- Online Information Review (OIR): 2017
- International World Wide Web Conference (WWW): 2011
- ACM Conference on Recommender Systems (RecSys) workshop on "Recommenders and the Social Web": 2009, 2010
- International Conference on Computational Linguistics (COLING): 2010
- ACM Special Interest Group on Information Retrieval (SIGIR): 2010
- Journal of Computer-Mediated Communication (JCMC): 2010
- International Conference on Communities and Technologies (C&T): 2009
- ACM Conference on Hypertext and Hypermedia (Hypertext): 2007
- International Conference on Mobile and Ubiquitous Systems (Mobiquitous): 2007
- Electronic Commerce Research (ECR): 2007
- International Conference on Intelligent User Interfaces (IUI): 2007
- International Conference on Adaptive Hypermedia (AH): 2006